BOCAGIANA

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A NEW SUBSPECIES OF *LAMPADENA UROPHAOS* PAXTON 1963 FROM THE ATLANTIC OCEAN

By G. E. MAUL [1]

With 2 figures and 1 table

SYNOPSIS

The erection of a new subspecies of *Lampadena urophaos* is justified by showing a constant difference in the position of the PVO_1 relative to the PVO_2 and in the relative sizes of the caudal glands. The holotype is described in detail and mensural and meristic details of 18 paratypes are given.

INTRODUCTION

There are in the collection of the Museu Municipal do Funchal 18 specimens of a *Lampadena* species which have been coming to us from time to time over the past 30 years more or less, and the first 8 of which, all large specimens mainly taken from the stomachs of *Aphanopus carbo*, were originally misidentified as *Lampadena nitida* and stored under this name. In going through the «Discovery» myctophids taken near Madeira in 1961, eight small specimens of the genus *Lampadena* were recognized as belonging to the same species as the 8 first mentioned, and it was also found that they represented an undescribed species.

The original description of *Lampadena urophaos* by Paxton in 1963 contained two errors (1. the antorbital photophore in Dn position and 2. the original of anal under end of dorsal) which made us hesitate in referring our material to this species in spite of undeniable great general agreement

1) Museu Municipal do Funchal. Madeira

in almost all other characters. In a review of the genus *Lampadena*, however, Nafpaktitis and Paxton (1968) give a detailed description of material belonging to *L. urophaos*, whereby the errors made in the original description were corrected. The antorbital photophore was found to be in Vn position as is the case in all known species of the genus *Lampadena*, and the origin of the anal was found to be behind a vertical through the end of the base of the dorsal fin, the same as in our material. This removed all doubt as to the specific identity of our specimens with Paxton's species.

Apart from Pacific material the above mentioned authors include 3 specimens from the Atlantic, but mention that they present differences in the position of the PVO_1 and, in specimens over 50mm., the relative sizes of the caudal glands. The 18 specimens plus 2 from the west coast of Spain to be treated below have shown that the differences pointed out by Nafpaktitis and Paxton are constant, with a minimum overlap only in the case of the position of PVO_1 relative to PVO_2, so that it is possible to tell from a single specimen of over 50mm. to which population of the two oceans in question it belongs. It is therefore deemed justifiable to erect for the specimens from the Atlantic Ocean the new subspecies *atlantica*, based on the material described below.

Lampadena urophaos atlantica subsp. n.

Lampadena nitida (Tåning). Maul, 1946, Bol. Mus. Mun. Funchal, No. II, Art. 2, p. 42, fig. 15. Artê, 1952, P. Inst. Biol. Apl., Tomo X, p. 95.
Lampadena urophaos Paxton [*partim*. Atlantic specimens]. Nafpaktitis and Paxton, 1968, Contribution in Science, No. 138, p. 7.

Holotype. Large specimen (fig. 1), according to fisherman taken on hook of long vertical line used for fishing *Aphanopus carbo*, recorded under misidentification of *Lampadena nitida* Norman [see above]: MMF Reg. No. 2464, SL. 229mm., Câmara de Lobos, date uncertain, about 1935.

Paratypes. Seven from stomachs of *A. carbo*, fairly well preserved: MMF Reg. No. 16405, paratype No.1, S.L. 223mm., 22.X.1959; 20048, paratype No.2, S.L. 183mm., 14.X.1963; 14516, paratype No.3, S.L. 175mm., 11.VIII.1958; 7583, paratype No.4, S.L. 153mm., 6.XII.1955; 6696, paratype No.5, S.L. 147mm., 19.X.1955; 8654, paratype No.8, S.L. 131mm., 26.VI.1956; 14973, paratype No.10, S.L. 91mm., 27.X.1958.

From stomach of *Mupus ovalis*: MMF Reg. No.11447, paratype No.6, S.L. 137mm., 27.IV.1957.

«Discovery» station 4742, 20.IX.1961, 32°42'N, 16°32'W to 32°51'N, 16°13'W, Isaacs-Kidd Midwater Trawl, 1700-(0) m. 2 specimens, MMF Reg. Nos. 21724 & 21725, paratypes Nos. 11 & 12, S. L. 28.5 & 28.7mm.

«Discovery» station 4743, 20.IX.1961, 32°34 ½'N, 16°45'W to 32°28'N, 16°54'W, British Columbian Midwater Trawl, 170-(0) m., 6 specimens, MMF Reg. Nos. 21726 (fig. 2) - 31731, paratypes Nos. 13-18, S. L. 20.8-28.3mm.

«Meteor» station IKMT 2, 17.VI.1967, 0715-1400, 30°06'N, 12°06'W, Isaacs-Kidd Midwater Trawl (MPS, bucket 3), 400-0m., 1 specimen, MMF Reg. No. 22678. paratype No. 9, S. L. 122mm.

About 9°40'W, between 41°30'N and 43°N, on line for *Brama raii* «Palangre» let down to a maximum depth of 60 fathoms. Collection of the Laboratorio de Vigo, paratype No. 7, S. L. 137mm.*

DESCRIPTION OF HOLOTYPE

The holotype (fig. 1) was given to us in Câmara de Lobos by one of the fishermen who had been out at sea during the night fishing for espada (*Aphanopus carbo*). It was very fresh and, except for missing scales and some small damage on the left side in the region of the first two light organs of the AO series, was well preserved. It was stated by the fisherman that it had been taken on one of the numerous hooks of their espada lines. If this is true, the hook must have been removed from it very carefully, for there is no sign of any damage in the mouth. Other material of this same species, which was found in the stomachs of *A. carbo*, shows definitely that it is met with in the depth inhabited by this lepidopid. Owing to the aforementioned damage the first two organs of the AO series of the left side are missing.

Body rather stout, greatest depth 4 times in standard length, head 3.5 times, depth of caudal peduncle 7.6 times. Diameter of orbit 3.8 times in head. Origin of ventrals well behind origin of dorsal. Origin of anal distinctly behind base of dorsal. Base of adipose above end of base of anal. Base of anal shorter than base of dorsal, pectorals short, about reaching

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* Through the courtesy of Dr. Pedro Artê of the Instituto de Investigaciones Pesqueras, Barcelona, and the Director of the Laboratorio de Vigo the author has been able to see 2 specimens out of the collection in Vigo. Both measure 137mm. in standard length and one has been incorporated in table 1 as paratype No. 7.

TABLE 1

Proportions and counts of holotype and paratypes of *Lampadena urophaos atlantica* subsp. n.

Lampadena urophaos atlantica ssp. n.		Holo-type	Paratypes																	
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
MMF Reg. No.		2464	16405	20048	14516	7583	6696	11447	—	8654	22678	14973	21724	21725	21726	21727	21728	21729	21730	21731
Standard length (mm.)		229	223	183	175	153	147	137	137	131	122	91	28.7	28.5	28.3	23.8	23	23	22.2	20.8
Head	Thousands of standard length	284	300	301	303	307	299	307	310	313	316	324	338	326	343	344	339	339	342	341
Orbit		74	77	87	82	78	77	66	88	80	82	86	77	74	74	84	78	87	86	82
Premaxillary		205	220	227	229	222	224	226	228	237	234	245	244	246	247	252	248	261	257	250
Snout to dorsal		450	448	454	452	—	456	—	445	439	459	462	453	467	459	475	461	487	473	490
Snout to anal		651	686	648	663	660	639	628	653	649	635	670	652	649	661	651	643	677	653	630
Snout to ventrals		480	493	481	480	497	452	460	477	488	475	—	516	484	505	513	500	509	473	486
Base of dorsal		194	181	180	192	—	194	—	204	191	205	187	171	179	177	168	165	161	171	168
Base of anal		148	135	142	149	—	—	—	146	153	154	143	143	144	145	147	130	130	135	139
Depth of caudal peduncle		131	117	109	132	—	129	—	139	—	135	121	101	102	99	—	91	87	—	96
Longest gill raker		20	18	25	25	24	22	24	29	27	37	34	52	60	53	50	52	52	45	53
Dorsal	Counts	15	15	15	16	—	14[2]	—	15	15	15	15	15	15	15	15	15	15	15	15
Anal		14	14	14	14	14	14	—	14	14	14	14	14	14	14	14	14	14	14	14
Pectorals		16	16	16	16	15?	16	16	16	16	17 16	16	16	16	16	—	16	16	—	—
Ventrals[1]		9	9	9	9	8	8	8	9	8	9	8	8	8	8	8	8	8	8	8
Gill rakers	left	4+1+9	4+1+9	4+1+9	4+1+5[3]	4+1+9	4+1+9	4+1+9	4+1+9	4+1+9	4+1+9	4+1+9	4+1+9	4+1+9	4+1+9	4+1+9	4+1+9	4+1+9	4+1+9	4+1+9
	right	4+1+9	4+1+9	4+1+9	4+1+9	4+1+9	4+1+9	4+1+9	4+1+9	4+1+9	4+1+8	4+1+9	4+1+9	4+1+9	4+1+9	4+1+8	4+1+9	4+1+9	3+1+9	4+1+8
AO	left	?+2	—	?	—	—	?	—	5+2	5+?	5+2	5+2	5+2	5+2	5+2	5+2	5+2	5+2	5+2	5+2
	right	5+2	—	5+2	—	—	5+?	—	5+2	?	5+2	5+2	5+2	5+2	5+2	5+2	5+2	5+2	?	5+2

1) An extremely small first spine is probably present in all but not visible without clearing and staining. The value for ventrals is likely to be 9 throughout.

2) Abnormal. Interval between sixth and seventh ray twice as wide as those of the adjacent rays.

3) Anomaly caused by injury.

vertical through origin of ventrals. Ventrals with inner rays only slightly shorter than outer ones.

Teeth along premaxillaries and dentaries in bands, those of inner rows enlarged and more widely spaced. Some large recurved teeth in outer row of premaxillaries near symphysis. Teeth of palatines in a narrow band. Head of vomer with 4-5 sturdy teeth on each side. A large patch of teeth on entopterygoids, those of the inner and posterior rows greatly enlarged. Large, close-set, curved teeth on upper pharyngeals.

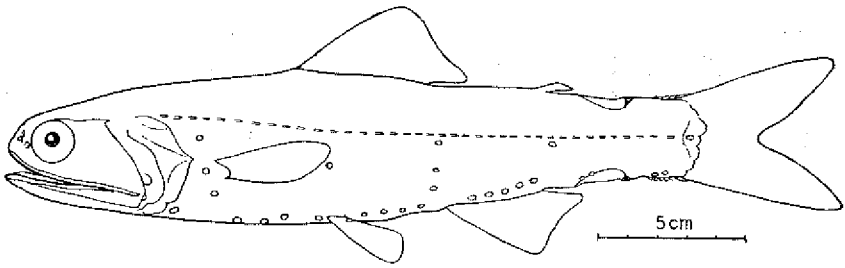

Fig. 1. — *Lampadena urophaos atlantica* subsp. n. Holotype. MMF Reg. No. 2464.

Dorsal 15; anal 14; pectorals 16; ventrals 9; gill rakers 4+1+9 (right and left); AO 5+2 on right side. The gill rakers are short and stout.

Vn present; no Dn. PLO about 3 photophore diameters below lateral line and anterior to PVO_2; PVO_1 entirely behind PVO_2. Five PO, interspace between first and second about twice as wide as the following ones, fourth slightly elevated, fifth in front of base of outer ray of ventral, at a distance equal to about half a photophore diameter. VLO above base of outer ray of ventral, closer to lateral line than to ventral. On the left side SAO_1, SAO_2 and SAO_3 in a straight line, on the right side they form an even curve with the last VO; intervals between SAO_2 and SAO_3 slightly greater than the intervals between the last VO and SAO_1, and SAO_1 and SAO_2; SAO_3 slightly behind SAO_2 and slightly behind end of base of dorsal, very near lateral line. AOa very slightly curved and evenly spaced; last AOa over, slightly posterior to base of last but one ray of anal; Pol distinctly behind last AOa, very near lateral line; two

AOp on and in middle of anterior half of upper edge of infracaudal gland. Prc_1 over second and Prc_2 over fourth ventral procurrent spines; Prc_3 at base of middle rays of caudal.

Supra and infracaudal glands opposite each other, of equal size and shape, somewhat longer than diameter of orbit.

REMARKS ON PARATYPES

Most of the meristic characters of the 18 paratypes are given in table 1. As regards fin-ray counts, there is agreement with the holotype except in specimen 14516, which has 16 instead of 15 dorsal rays, and 22678, which has, on one side, 17 instead of 16 pectoral rays. Thirteen have the same count for gill rakers on both sides as the holotype, whereas 4 have the same only on the left side, while on the right side there is one less in the total number, and one has an anomalous count on the left side. The AOa series of photophores is legible on both sides in 10, whereas in 4 it is intact only on one side; all counts agree with that of the holotype.

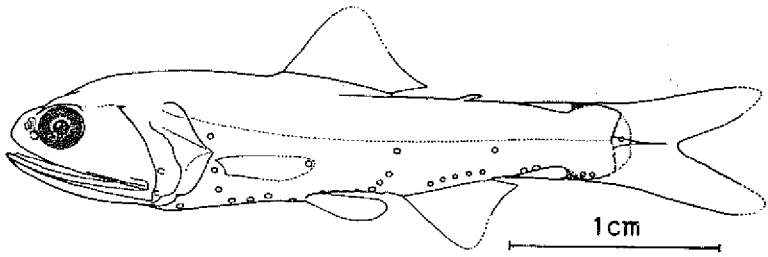

Fig. 2. — *Lampadena urophaos atlantica* subsp. n. Paratype No. 13, MMF Reg. No. 21726.

The enlarged teeth of the inner rows of the entopterygoids and the upper pharyngeals are very conspicuous in specimens of 91mm. and larger, while in the small ones they are not very noticeable and could easily be overlooked. In all paratypes, except the largest, the short row of strongly modified, recurved, forwardly bent canines of the inner margin of the posterior end of the dentaries is present, these teeth being progressively more conspicuous the smaller the specimen. In the largest specimen these modified teeth are completely absent, which is also the case in the more or less equally large holotype.

The premaxillary is of greater proportion in the smaller specimens than in the larger ones and there is a progressive strong reduction of proportional length of the gill rakers in ontogeny.

The number and distribution of the photophores, where preserved, is in almost all the same as in the holotype; in all, the fourth PO is slightly elevated, the AOp are both on the anterior half of the infracaudal gland and the first two Prc are well removed from the posterior end of this gland. The interspace between SAO_2 and SAO_3 is about twice that of the interspace between SAO_1 and SAO_2, whereas in the holotype it is only slightly greater.

DISCUSSION

Apart from the posterior position of PVO_1 in relation to PVO_2 and the relative size of the caudal glands, as pointed out by Nafpaktitis and Paxton (1968), the holotype and paratypes of the new subspecies do not seem to differ from the typical form of *L. urophaos* in any other characters, except the somewhat nearer position of the SAO_2 to SAO_3 in the holotype than in all the other specimens. Taking into account the left and the right side of the entire material, including a second specimen from Vigo not incorporated in table 1, the PVO were legible in 32 cases of which only 3 had the PVO_1 under PVO_2 on one side. In the remaining 29 the PVO_1 was from just behind a vertical through the centre of PVO_2 to entirely behind this photophore.

Distribution. Eastern and western North Atlantic between about 20° and 45° latitude.

LITERATURE

Arté, P.:
1952. Peces raros o nuevos para el litoral gallego (N. W. de España). *P. Inst. Biol. Apl.*, Tomo X, pp. 93-103.

Nafpaktitis, Basil G. and John R. Paxton:
1968. Review of the Lanternfish Genus *Lampadena* with description of a New Species. *Contributions in Science*, No. 138, pp. 1-29.

Maul, G. E.:
1946. Monografia dos Peixes do Museu Municipal do Funchal, Ordem Iniomi. Bol. Mus. Mun. Funchal, No. II, Art. 2, pp. 5-61.

Paxton, John R.:
1963. A New Lanternfish (Family Myctophidae) of the Genus *Lampadena* From the Eastern Pacific Ocean. *Copeia*, No. 1, pp. 29-33.

B O C A G I A N A

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NOTES ON TWO MADEIRA PLANTS

By N. C. H. Krauss [1]

The composite plant «Abundância» (*Eupatorium adenophorum* Spreng.) has been known in Madeira for many years. On July 24, 1962 I collected a second species of *Eupatorium*, *E. riparium* Schultz-Bip., confirmed by the Royal Botanic Garden, Kew, England. This was growing in association with *E. adenophorum* in a damp area along a path near Monte. Both these species of *Eupatorium* are native to Mexico. I have seen *E. riparium* growing along a small stream in a ravine at the Desierto de los Leones, Distrito Federal, in the hills above Mexico City. Both species are pests in grazing land in Hawaii.

On November 7, 1960 I collected specimens of *Ulex minor* Roth (determined by Royal Botanic Garden, Kew) in the grassy hills above Ribeiro Frio. Since then I have seen it also at Encumeada and Santo da Serra. *Ulex europaeus* L. has been known in Madeira for a long time, but I have not seen any records of *U. minor*.

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1) Entomologist, Hawaii State Department of Agriculture, Honolulu 14, Hawaii, U. S. A.